Exploiting the origins of Ras mediated squamous cell carcinoma to develop novel therapeutic interventions.

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Public Summary:
The small GTPase Ras is activated in a high proportion of human cancers. Attempts to clinically block Ras activity through pharmacological means has proven largely ineffective thus far. We employed an inducible mouse model of squamous cell carcinoma (SCC) to study the effect of Ras activation and show that hair follicle stem cells (HFSCs) are a cell of origin for SCC, whereas their more restricted progeny cannot serve as cancer cells of origin and are refractory to Ras activation. We propose that by identifying the unique mechanisms by which HFSCs are mobilized to initiate Ras mediated tumorigenesis, the molecular process behind SCC can be more completely elucidated and context dependent activities for Ras more clearly defined. Here, we summarize our recent results and point to future experiments designed to create novel therapeutics by exploiting the differential sensitivities of various cells within the epidermis to Ras activation.

Scientific Abstract:
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